

Section I. (Amendment to the Claims)

Please amend claims 1, 8, 17-18, 23 and 32 as set forth in the following listing of claims 1-36 of the application.

1. (Currently Amended) A semiconductor process system adapted for processing of a material

APR 11 2006

infrared radiation with a thermopile detector, generating an output from said thermopile detector indicative of concentration of a desired component of said material, and controlling one or more conditions in and/or affecting the semiconductor process, in response to said output, wherein said infrared radiation is transmitted along a transmission path that is substantially linear, and wherein said infrared radiation source and said thermopile detector are aligned along the transmission path.

34. (Original) A method of operating a semiconductor process including processing of or with a material, said method comprising transmitting infrared radiation generated by an infrared radiation source through a sampling region containing said material, receiving the transmitted infrared radiation with a thermopile detector, generating an output from said thermopile detector indicative of concentration of a desired component of said material, and controlling one or more conditions in and/or affecting the semiconductor process, in response to said output, wherein said infrared radiation is transmitted along a transmission path that comprises an inner surface characterized by a roughness in a range of from about 0.012 μm Ra to about 1.80 μm Ra.
35. (Original) A method of operating a semiconductor process including processing of or with a material, said method comprising transmitting infrared radiation generated by an infrared radiation source through a sampling region containing said material, receiving the transmitted infrared radiation with a thermopile detector, generating an output from said thermopile detector indicative of concentration of a desired component of said material, and controlling one or more conditions in and/or affecting the semiconductor process, in response to said output, wherein said sampling region is isolated from said infrared radiation and said thermopile detector with interfacial spaces therebetween, and wherein a purge gas is provided at said interfacial spaces for removing particles contained by said material and preventing particle deposition thereat.

36. (Original) A method of operating a semiconductor process including processing of or with a material, said method comprising transmitting infrared radiation generated by an infrared radiation source through a sampling region containing said material, receiving the transmitted infrared radiation with a thermopile detector, generating an output from said thermopile detector indicative of concentration of a desired component of said material, and controlling one or more conditions in and/or affecting the semiconductor process, in response to said output, wherein the infrared radiation is transmitted from the infrared radiation source to the thermopile detector along a transmission path, and wherein thermal energy is provided for heating at least a portion of the infrared transmission path.